REMARKS

Claims 1, 4-16, 18-24 and 26-30 remain pending in the application.

Claims 1, 4, 5 and 11-13 over Smith in view of Twitchell

In the Office Action, claims 1, 4, 5 and 11-13 were rejected under 35 USC 103(a) as allegedly being obvious over U.S. Pat. No. 6,430,671 to Smith ("Smith") in view of U.S. Pat. No. 6,519,010 to Twitchell et al. ("Twitchell"). The Applicants respectfully traverse the rejection.

Claims 1, 4, 5 and 11-13 recite a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions.

The Examiner relies on Smith to disclose a a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions, citing Smith's Figs. 5B; Figs. 13-15; element 508; col. 17, lines 40-67; col. 18, lines 30-67; and col. 19, lines 1-67.

Smith discloses an infinite impulse response filter implementing a **single** transfer function at col. 17, lines 63-67, col. 18, lines 1-5 and Eq. (1). Thus, Smith fails to disclose or suggest a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions, as recited by claims 1, 4, 5 and 11-13.

Moreover, claims 1, 4, 5 and 11-13 recite a filter selector to select any one of a **plurality** of infinite impulse response filter transfer functions for an programmable infinite impulse response filter.

As discussed above, Smith fails to disclose a **plurality** of infinite impulse response filter transfer functions for a programmable infinite impulse response filter. Moreover, the Examiner alleges Smith's element 510 that acts as a multiplexer equates to the claimed filter selector to select any one of a **plurality** of infinite impulse response filter transfer functions for an programmable infinite impulse response filter (Office Action, page 2).

Smith discloses an element 510 that takes a single input and selectively directs the single input signal to two output paths (Fig. 5B). Thus, Smith's element 510 fails to even select from a plurality of inputs since only

having a single input, much less act as a filter selector to select any one of a **plurality** of infinite impulse response filter transfer functions for an programmable infinite impulse response filter, as recited by claims 1, 4, 5 and 11-13.

Moreover, Claims 1, 4, 5 and 11-13 recite a finite impulse response digital filter to receive an output from a programmable infinite impulse response filter.

The Office Action relies on Smith's element 510 to disclose a finite impulse response digital filter to receive an output from a programmable infinite impulse response filter. However, Smith's finite response filter 510, Fig. 5B receives an output from demultiplexer 510 (erroneously labeled by Smith the same as finite response filter 510). Smith discloses a finite impulse response digital filter to receive an output from a demultiplexer **NOT** a finite impulse response digital filter to receive an output from a programmable infinite impulse response filter, as recited by claims 1, 4, 5 and 11-13.

Moreover, claims 1, 4, 5 and 11-13 recite a digital adaptive equalizer that at least one of corrects for and equalizes impairments caused in a high speed transmission signal.

The Office Action acknowledges that Smith fails to disclose an adaptive equalizer that at least one of corrects for and equalizes impairments caused in a high-speed transmission signal (Office Action, page 2). The Office Action relies on Twitchell to allegedly make up for the deficiencies in Smith.

The Office Action alleges Twitchell discloses an adaptive equalizer that at least one of corrects for and equalizes distortions caused in a high speed transmission at col. 5, lines 5-20. However, Twitchell discloses performing pre-distortion to compensate for linear distortion caused by a high power filter, i.e., adding distortion to the signal (col. 5, lines 6-9). Thus, Twitchell is not correcting distortion in a signal, but is performing the opposite function of distorting the signal to **counter** distortion that will be created by a high power filter. The Office Action reliance on Twitchell's use of pre-distortion is **NOT** a digital adaptive equalizer that at least one of corrects for and equalizes impairments caused in a high speed transmission signal, as recited by claims 1, 4, 5 and 11-13.

Moreover, Smith modified by Twitchell would be **nonsensical**.

Twitchell discloses use of pre-distortion to compensate for distortion caused by a high power filter. Smith fails to disclose or suggest **use** of a high power filter that would require such pre-distortion.

Smith modified by Twitchell fails to disclose or suggest the claimed features, much less the combination of features, i.e., a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions; a filter selector to select any one of the plurality of infinite impulse response filter transfer functions for the programmable infinite impulse response filter; and a finite impulse response digital filter to receive an output from the programmable infinite impulse response filter wherein the digital adaptive equalizer at least one of corrects for and equalizes impairments caused in a high speed transmission signal, as recited by claims 1, 4, 5 and 11-13.

For at least all the above reasons, claims 1, 4, 5 and 11-13 are patentable over the prior art of record. It is therefore respectfully requested that the rejection be withdrawn.

Claims 6-10 over Smtih in view of Twitchell and Boyd

Claims 6-10 were rejected under 35 USC 103(a) as allegedly being obvious over Smith in view of Twitchell, and further in view of U.S. Pat. No. 6,438,162 to Boyd et al. ("Boyd"). The Applicants respectfully traverse the rejections.

Claims 6-10 are dependent on claim 1, and are allowable for at least the same reasons as claim 1.

Claims 6-10 recite a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions; a filter selector to select any one of the plurality of infinite impulse response filter transfer functions for the programmable infinite impulse response filter; and a finite impulse response digital filter to receive an output from the programmable infinite impulse response filter wherein the digital adaptive equalizer at least one of corrects for and equalizes impairments caused in a high speed transmission signal, as recited by claims 1, 4, 5 and 11-13.

As discussed above, Smith modified by Twitchell fails to disclose or suggest the claimed features, much less the combination of features, i.e., a programmable infinite impulse response filter to implement any of a **plurality** of infinite impulse response filter transfer functions; a filter selector to select any one of the plurality of infinite impulse response filter transfer functions for the programmable infinite impulse response filter; and a finite impulse response digital filter to receive an output from the programmable infinite impulse response filter wherein the digital adaptive equalizer at least one of corrects for and equalizes impairments caused in a high speed transmission signal, as recited by claims 6-10.

The Office Action relies on Boyd to allegedly make up for the deficiencies in Smith modified by the disclosure of Twitchell to arrive at the claimed invention. The Applicants respectfully disagree.

Boyd appears to disclose a method and apparatus for restoring digital pulses within a data transmission system which have degraded due to the attenuation and distortion inherent in a data medium (Abstract; col. 3, lines 50-60).

Boyd discloses correcting a data signal caused by attenuation and distortion inherent in a data medium. However, Boyd fails to disclose or suggest the claimed features to perform the function, i.e., a digital adaptive equalizer comprising a **programmable infinite impulse response filter**, a filter selector to select from a plurality of filter transfer functions for the programmable infinite impulse response filter, and a finite impulse response filter, as recited by claims 6-10.

Thus, Smith modified by the disclosure of Twichell and Boyd would still fail to disclose, teach or **suggest** a digital adaptive equalizer that at least one of corrects for and equalizes impairments caused in a high speed transmission signal, the digital adaptive equalizer comprising a **programmable infinite impulse response filter**, a filter selector to select from a **plurality** of filter transfer functions for the programmable infinite impulse response filter, and a finite impulse response filter, as recited by claims 6-10.

For at least all the above reasons, claims 6-10 are patentable over the prior art of record. It is therefore respectfully requested that the rejections be withdrawn.

Claims 14-16, 18-24 and 26-30 over Smith in view of Simmons

Claims 14-16, 18-24 and 26-30 were rejected under 35 USC 103(a) as allegedly being obvious over Smith in view of U.S. Pat. No. 6,195,414 to Simmons et al. ("Simmons"). The Applicants respectfully traverse the rejections.

Claims 14-16, 18-24 and 26-30 recite at least one of correcting for and equalizing impairments caused in a received T1/E1 data signal by firstly filtering a received T1/E1 data signal using a infinite impulse response digital filter and adaptively adjusting an output of the infinite impulse response digital filter to accurately match an inverse response of a transmission channel used to transmit said received T1/E1 data signal.

The Office Action acknowledges that Smith fails to disclose filtering a T1/E1 data signal (Office Action, page 5). However, the Office Action relies on Simmons to allegedly make up for the deficiencies in Smith to arrive at the claimed features.

Simmons appears to disclose a system and method for accurately simulating a digital facility, including impairments, in a PSTN (Abstract). The facility being simulated includes a digital network link, i.e., a T1, E1 or other digital link (Simmons, col. 5, lines 52-60). An infinite response filter is used to remove images created during the immediately prior interpolation and to impart appropriate band shaping required to match a frequency response characteristic of a desired CODEC receive filter (Simmons, col. 11, lines 51-56).

Although Simmons discloses use of an infinite response filter, the infinite response filter is used to remove images created during the immediately prior interpolation and also imparts appropriate band shaping required to match a frequency response characteristic of a desired CODEC receive filter. Simmons use of an infinite response filter for removing images and band shaping to match a **CODEC** does **NOT** suggest at least one of correcting for and equalizing impairments caused in a received T1/E1 data signal, much less by firstly filtering

a received T1/E1 data signal using a infinite impulse response digital filter and adaptively adjusting an output of the infinite impulse response digital filter to accurately match an inverse response of a transmission channel used to transmit said received T1/E1 data signal, as recited by claims 14-16, 18-24 and 26-30.

Smith modified by the disclosure of Simmons would still fail to disclose or suggest at least one of correcting for and equalizing impairments caused in a received T1/E1 data signal by firstly filtering a received T1/E1 data signal using a infinite impulse response digital filter and adaptively adjusting an output of the infinite impulse response digital filter to accurately match an inverse response of a transmission channel used to transmit said received T1/E1 data signal, as recited by claims 14-16, 18-24 and 26-30.

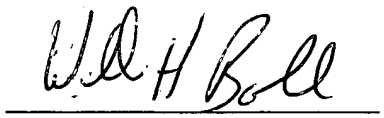
Moreover, as the Examiner acknowledges, Smith fails to disclose filtering a received T1/E1 data signal. Smith fails to disclose filtering a received T1/E1 data signal because Smith fails to disclose a T1/E1 data line. Thus, modifying Smith to filter a received T1/E1 data signal when Smith fails to disclose a T1/E1 data **line** that requires such filtration is **nonsensical**.

For at least all the above reasons, claims 14-16, 18-24 and 26-30 are patentable over the prior art of record. It is therefore respectfully requested that the rejections be withdrawn.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,



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